Volume 2, Issue 1
Jan/Feb/Mar 2009

PRESERVING OUR HERITAGE BY
PROTECTING OUR WATER RESOURCES

The Lower Fox River Basin and Green Bay

Our Watershed

In this issue of Our Watershed, we focus on riparian (waterfront) buffer zones. Whether in urban or rural settings, riparian buffers used along a waterway is one of the most effective conservation methods we can use to improve our water and help achieve TMDL goals (see below). If you live next to any kind of waterway, consider using a buffer zone. On Page Two Bill Hafs, Brown County conservationist, encourages us to be aware of the true cost of not using this cost-effective water quality tool when we have the choice. On Page Three we list some of the many benefits that buffer zones offer and we give you useful links to additional sources of information that may assist you in establishing and maintaining your own buffers. Also on Page Three, for those who do not live next to the water, we offer other useful suggestions on protecting and preserving our water quality and resources. Finally on Page Four we display a map of our watershed and charts showing phosphorus (P) and total suspended solids (TSS) loads with a breakdown of contributing factors. As for the buffers, keep in mind that if you don't live next to a waterway, perhaps you know a neighbor, friend, or relative who might find the buffer information useful, so do your watershed a favor and pass this newsletter along!

On a related branch of water quality issues, you may have heard that the Wisconsin Department of Natural Resources (DNR) is developing a Total Maximum Daily Load (TMDL) analysis. A TMDL is basically a pollution budget. It calculates the maximum amount of pollutants, in this case phosphorus and suspended solids, allowed to enter a water body so that it will meet and continue to meet water quality standards or desired conditions. Currently, too much phosphorus and suspended solids are present in the Lower Fox River, many of its tributary streams and Lower Green Bay. These pollutants cause excessive algae growth, poor water clarity, reduced habitat for fish and wildlife, unpleasant odors, beach closings, health warnings, drinking water restrictions, as well as many other degraded health and environmental conditions. To learn more about TMDLs, you can visit http://dnr.wi.gov/org/water/wm/wqs/303d/FoxRiverTMDL/ and to learn more about sediment and phosphorus please visit http://www.uwgb.edu/watershed/index.htm.

Reducing the amount of phosphorus and sediment going into the Fox River will take all of us working together, using cost-effective and creative strategies. We all need to work toward the goal of cleaner water. We can have an impact on water quality simply by changing the way we use and treat water. One of the ways that we can help to clean and protect our waters is to install riparian buffer zones along our waterways.

Watershed Moments

EVENTS, CONFERENCES, SYMPOSIUMS

WI Rural Water Assoc - 21st Annual Technical Conference
March 24-27—Green Bay

Fox-Wolf Watershed Alliance Stormwater Conference
March 25-26 — Kimberly

Society of Wetland Scientists 2009 Annual Meeting
June 21-26 — Madison

State of Lake Michigan 2009 & Annual Great Lakes Beach Assoc. Conference
Sept. 29 - Oct. 1—Milwaukee

DON'T FORGET:
Earth Week 2009
April 18-26

If you have a Watershed Moment to contribute, contact Trisha Cooper at (920) 465-2979 or send email to adamta26@uwgb.edu

Buffers Can Help Protect Wisconsin Water

Water is Wisconsin's most important resource. According to the DNR we have 15,000 lakes, 41,947 miles of perennial streams and 5.3 million acres of wetlands. We can help protect this critical resource and our water quality by installing riparian buffers. Riparian buffers are vegetated areas (at least 70% ground cover) adjacent to waterways that slow and filter water runoff as well as offering many other practical and aesthetic benefits (see below and Page Three for more).

BEFORE: PLUM CREEK – UNMANAGED PASTURE

AFTER: PLUM CREEK ONE YEAR LATER –LIVESTOCK REMOVED

BEFORE: MANY LANDOWNERS PLOW THROUGH INTERMITTENT STREAMS

AFTER: ONE YEAR LATER. THE AVERAGE BUFFER WIDTH IS 35 FEET PER SIDE

Buffer strips installed as part of the Wisconsin Buffer Initiative (WBI) research conducted in 2005 by UW Scientist John Norman and his team resulted in 69% and 72% sediment capture. Professor Wendell Gilliam from North Carolina State University in his testimony to the United States Congress said *"it is my opinion that riparian buffers are the most important factor controlling nonpoint pollution."*

Some argue that Wisconsin law, which requires the state to offer to pay 70% of the cost of installing buffer strips, is the reason buffers cannot be installed everywhere in Wisconsin—it would be too expensive. **What is the cost of not installing buffer strips?** For instance, what is the true cost when we lose a trout stream due to excessive phosphorus and sediment? What is the true cost when our streams and rivers turn green from algae? Or worse yet, when we have to close swimming beaches and issue health warnings due to toxic algae?

There are many water quality and ecological values to buffers beyond sediment and phosphorus delivery to lakes and streams. There are hundreds of scientific studies on buffer strips that show their importance to water quality functions such as: stream bank stabilization, water purification, sediment reduction, chemical removal, decrease of nitrate concentration in groundwater, pesticide and metals removal, shade production and temperature moderation, particulate organic matter, flood attenuation and floodplain hydrology, manure spreading setbacks, plowing setbacks, protection of groundwater recharge areas, terrestrial wildlife habitat and aquatic interactions, recreational and aesthetic benefits that result in economic benefits.

With growing populations and increasing demand on land use, it is important that we help protect our water quality and try to help nature filter our waters by preserving a little bit of nature next to our streams through buffering. We should carefully evaluate the decision to develop or plow every bit of land right up to and through a stream. Estimating the true cost of development and plowing before we actually take these actions may prevent us from compromising our water quality further. Protecting our water heritage by protecting and preserving our lakes, rivers, streams and wetlands should become a primary concern.

Do buffers improve and protect water quality and protect Wisconsin streams? **Of course they do!**

Buffer strip functions:

- **Stream bank stabilization**
- **Water purification**
- **Sediment reduction**
- **Chemical removal (infiltration, deposition, filtration, adsorption, degradation, and assimilation)**
- **Decreases nitrate concentration in groundwater as it moves through riparian zones along streams**
- **Pesticide and metals removal**
- **Shade production and temperature moderation**
- **Particulate organic matter**
- **Flood attenuation and floodplain hydrology**
- **Manure spreading setbacks**
- **Plowing (mechanical erosion) setbacks**
- **Protection of groundwater recharge areas**
- **Terrestrial wildlife habitat and aquatic interactions**
- **Recreational and aesthetic benefits that result in economic benefits.**

Buffer article and photos contributed by:

Bill Hafs—County Conservationist
Brown County Land & Water Cons. Dept.
1150 Bellevue Street
Green Bay, Wisconsin 54302
Phone: 920-391-4633
E-mail: hafs_bc@co.brown.wi.us
Web Site: http://www.co.brown.wi.us/Land_Conservation/index.html

You can learn more about buffers at these websites:

USDA: Natural Resources Conservation Service

DNR: Vegetated Buffer for Construction Sites

UW Extension Publication: Shoreline Buffers

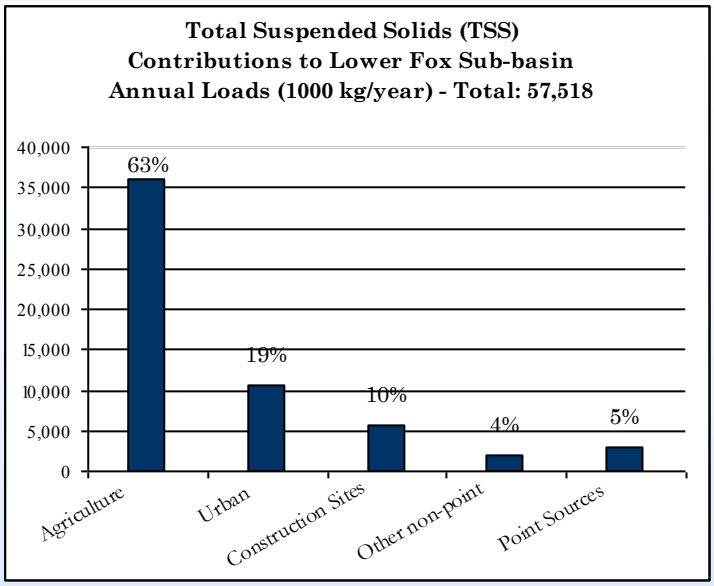
USDA Forest Service: Riparian Buffers for Agric. Land

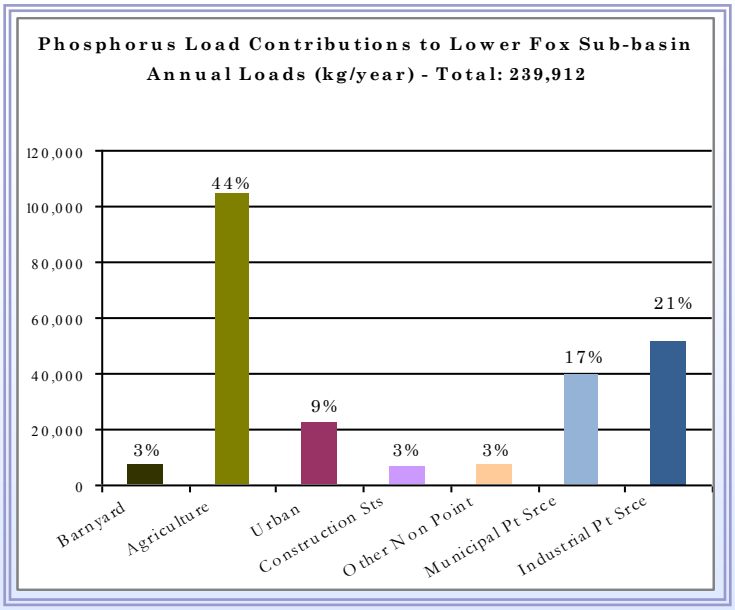
Even if you don't live near a waterway, there are many different steps you can take to help clean and protect our water—in both urban and rural settings. This creative homeowner established a small, grassy garden in her drainage-way. Not only does it slow stormwater, it filters it as well and adds beauty. Below you will find other suggestions.

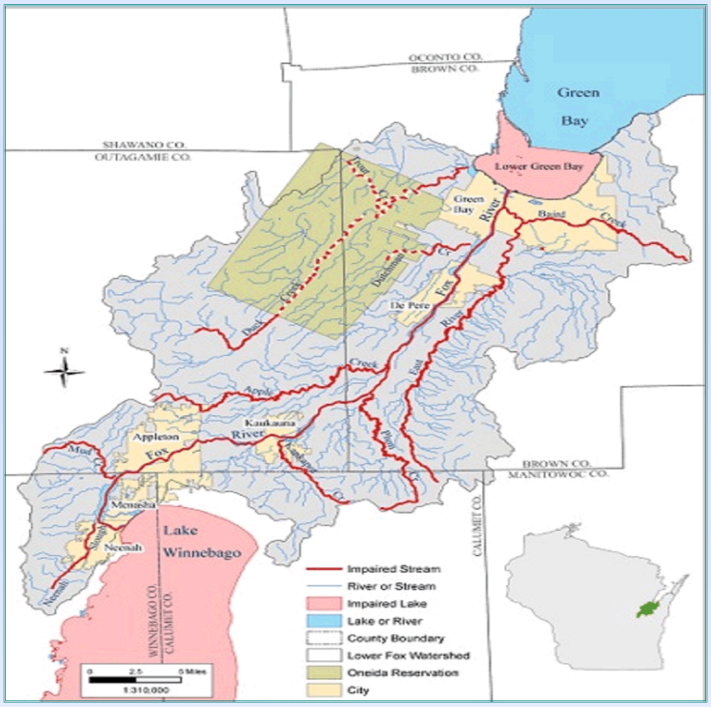
Try these simple suggestions:

- Create and maintain grassy or vegetated groundcover around ditches or drainage.
- Direct runoff into vegetated areas instead of directly into drainage or waterways.
- Direct downspouts onto garden areas or other vegetated groundcover instead of onto impervious surfaces. This helps to filter runoff before it goes into our water resources.
- Limit impervious surfaces where you can.
- Avoid using fertilizers and pesticides before a rain event and don't use them near ditches, drains, or waterways.
- Use rain gardens and rain barrels to collect runoff.

We all contribute to water pollution. We all can work together to clean our waters.







Partners working together on this TMDL include the Wisconsin Department of Natural Resources (DNR), U.S. Environmental Protection Agency (EPA), University of Wisconsin-Green Bay, University of Wisconsin-Extension, University of Wisconsin Sea Grant Institute, Green Bay Metropolitan Sewerage District, Brown County Land and Water Conservation Department, the U.S. Geological Survey, the Oneida Nation and Baird Creek Preservation Foundation, among others.

<u>But we need YOU!</u> You and your neighbors are the most important team-members in this TMDL. We can not successfully clean our waters without your help. You can help to improve water quality and make the Lower Fox River watershed a healthier and cleaner watershed simply by reducing the amount of chemicals and toxins you use in and around your home.

We are tied to the river. Our quality of life, economic vitality, sense of place, community pride and recreational activities are closely connected to the Fox River and Bay of Green Bay.

We understand the challenges. Yet through cooperation, we can all work toward the same goal—a cleaner watershed. ***We can make a difference.*** Numerous examples of small "wins" exist in the basin; local heroes and champions have made progress in improving water quality.

We'll do it together.

<u>For more information on water quality:</u>

Contact your county conservation department: http://www.wlwca.org/Pages/LCDWeb.htm

Contact a DNR field representative: http://www.dnr.state.wi.us/org/caer/cs/ServiceCenter/Locations.htm

<u>Newsletter contact:</u>

Trisha Cooper, UW-Green Bay, email at adamta26@uwgb.edu or call (920) 465-2979